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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,154

03/07/2006

Eberhard Kull

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EXAMINER

HUFTY, JOHN PAGE

ART UNIT

PAPER NUMBER

3747

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/595,154	Applicant(s) KULL, EBERHARD	
	Examiner John P. Hufty	Art Unit 3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8 March 2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 - 7, 9 - 16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann, U. S. Patent 4,296,887 in view Takeuchi U. S. Patent 4,566,316. Hoffman teaches a sleeve which houses and protects an injection nozzle (fig 1, feature 20) resting against a cylinder head (feature 17), having a lower end assigned to the combustion chamber with an upper end having an annular flange (feature 21, claim 1) a sealing ring (feature 23; claim 3) the sleeve "guided to the edge area of the hole" (fig 1), constructed for heat protection or "making contamination more difficult" (column 1, line 5-10; claim 1).

Hoffmann lacks a piezoelectric pressure sensor positioned between the sleeve and seal. However the use of these pressure sensors mounted in a cylinder head is well known in the art (see Takeuchi). Takeuchi teaches the use of this type of sensor for the purpose of measuring pressure (column 1, line 5-8).

A person of ordinary skill in the art of fuel injection systems has an undergraduate degree in mechanical engineering or the equivalent from on the job experience, additionally this person is well aware of the need for combustion regulation, sealing concerns and available options for achieving these goals.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the sensor of Takeuchi with the sleeve of Hoffmann for the purpose of measuring cylinder pressure.

Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman and Takeuchi as applied to claims 1 and 10 above, and further in view of Zabeck et al U. S. Patent 5,226,397. To the extent that Hoffman does not expressly teach a friction reducing coating Zabeck teaches the use of a friction reducing coating in contact areas for actuation (column 5, line 47 –57).

Therefore it would have been obvious to person of ordinary skill in the art as described above at the time of invention to combine the teachings of Zabeck with Hoffman and Takeuchi for ease of actuation of the sleeve.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Hufty whose telephone number is 571-272-9966. The examiner can normally be reached on 9:00 am - 5:00pm, Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen K. Cronin can be reached on 571-272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPH



STEPHEN K. CRONIN
SUPERVISORY PATENT EXAMINER